

## **RSC Submission to UK's Approach to Sustainable Development**

The Royal Society of Chemistry (RSC) welcomes the opportunity to comment on the new strategy for sustainable development in the UK.

The RSC is the largest organisation in Europe for advancing the chemical sciences. Supported by a network of 45,000 members worldwide and an internationally acclaimed publishing business, our activities span education and training, conferences and science policy, and the promotion of the chemical sciences to the public.

This document represents the views of the RSC and has been put together jointly by the RSC's Environment, Sustainability and Energy Forum and the Environment, Health and Safety Committee. The RSC's Royal Charter obliges it to serve the public interest by acting in an independent advisory capacity, and we would therefore be very happy for this submission to be put into the public domain.

The document has been written from the perspective of the Royal Society of Chemistry consequently our comments relate to only parts of the consultation document. However, the chemical sciences and chemical scientists will play an essential role in the transformations that are necessary to achieve a sustainable society.

### **Summary**

- The Government must demonstrate the link between innovation and sustainable development and promote sustainable development as an opportunity for innovation
- Increasing energy efficiency and energy production from renewable/non-fossil fuel sources must be central to key decision making
- Fostering innovative and creative solutions, enabled by the chemical sciences, will help realise major step changes in the future
- Integrating sustainability into the school and university curriculum is likely to be the most effective method of raising public awareness of sustainable development

- Changing lifestyles will be brought about by promoting the concept of shared responsibility coupled with increased dissemination of accessible scientific information
- Government must encourage R&D on alternative energy sources and technologies
- The Government needs to put in place a framework to provide incentives (most likely fiscal incentives) to promote innovation that will lead towards sustainability
- The government needs to work closely with business to enhance new green chemical technologies

## **Overview**

We believe that innovation will provide the solution to sustainability. Consequently, we were disappointed to see that the consultation document fails to mention innovation and the pivotal role that innovative technology will play in moving towards a sustainable society. The translation of ideas into products and services underpins both economic growth and improved environmental performance. To successfully underpin longer term sustainability, it is therefore important that we

- carry out fundamental long-term research alongside that which has more immediate wealth creation/quality of life potential
- accelerate the pace of innovation in the UK as a means of achieving all three pillars of sustainable development (ie. advances in economic and social progress and environmental protection)
- support the science and engineering skills base which will underpin progress in fundamental and applied research and innovation

The Government must demonstrate the link between innovation and sustainable development, which the RSC sees as currently lacking from the consultation document, and promote sustainable development as an opportunity for innovation.

The Government's four objectives broadly identify the correct areas for explaining sustainable development. However it is crucial that equal emphasis is placed on each objective to ensure that success is evenly balanced. To help achieve a balanced approach the RSC would welcome more use of metrics for measuring

growth that reflect not only growth in the economy but also advances in social progress and environmental protection.

The RSC commends the efforts by government to focus on delivery in the longer term. Sustainability is a strategic issue and changes are needed in the long term; therefore we emphasise the need to take an explicitly long term view. Meanwhile progress in reviewing processes and procedures can realise changes in the short-term.

Simultaneously increasing energy efficiency while increasing energy production from renewable/non-fossil fuel sources must be central to key decision making. Climate change is one of the biggest environmental problems facing the world. The RSC believes that nuclear power will have a key role to play in reducing CO<sub>2</sub> emissions and meeting targets for reductions in CO<sub>2</sub><sup>1</sup>. The scientific and technical expertise of the nuclear industry must be maintained until it can be shown that additional nuclear power will not be necessary to meet our targets. The RSC would welcome a more detailed consideration of how sustainable development will integrate with UK energy, transport and innovation policy.

### **Role of chemistry**

The chemical sciences will be at the heart of multidisciplinary initiatives in the 21<sup>st</sup> Century. Understanding events at the molecular level is vital to future innovation and invention. The chemical sciences provide the underpinning core expertise for most scientific and technological developments and continue to make enormous contributions to social, cultural, economic and intellectual advances.

The RSC understands how vital chemistry is to achieving sustainable development and to this end it has established a new multidisciplinary Forum: The Environment, Sustainability and Energy Forum which will drive forward initiatives in this important subject area.

Examples of where the chemical sciences will play a pivotal role in achieving major breakthroughs for a sustainable society include: developing more efficient and

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<sup>1</sup> Response of the Royal Society of Chemistry – Energy White Paper. Our Energy future – creating a low carbon economy. May 2003. <http://www.rsc.org/pdf/policy/rscenergywhitepaper.pdf>

cheaper solar cells; production and storage of hydrogen as means of moving towards the “hydrogen economy”; the use of plant-derived raw materials as chemical feedstocks as well as a source of energy. Fostering such innovative and creative solutions to tackle the major challenges presented by climate change and our current use of fossil fuels will help realise major step changes in the future.

### **Changing behaviour**

Active steps are required to change attitudes and values among the public, decision makers and others so that they embrace sustainability. Education is key here. Integrating sustainability into the school and university curriculum is likely to be the most effective method of raising public awareness of sustainable development. Since the solutions to sustainability will come from informed science and innovation, more effort needs to be provided to encourage the brightest students to follow courses in science and engineering coupled with making the best training available for science teachers.

It is vital that the public perception of chemistry and the chemical sciences is enhanced so that prospective students and the public in general appreciate the value of the chemical sciences as a means of realising technological innovation. Enthusing students to study the chemical sciences by promoting the subject as being modern, novel, enabling and innovative would help to improve the image of chemistry and engage the interest of the public and students from an early age. Government, industry and learned societies all have a role to play here.

Any attempt to improve consumer awareness should however be carefully programmed and co-ordinated - there is the danger of information overload and as a consequence the target information not getting through.

### **Climate Change and Energy**

Social involvement in decision-making is of vital importance to encourage more public involvement in reducing emissions. The role of the individual and the concept of shared responsibility and mutual stewardship should be emphasised as a key means of enabling change. Although climate change is largely perceived as an issue with which society should be concerned, there appears to be a failure for individuals

to link their own actions to environmental impact on a global scale. The issue is generally perceived to be a global one and industry's affair.

Government needs to become more proactive in changing lifestyles by disseminating scientific information on climate change in an accessible manner so that the public understands and believes in climate change as a reality. Disseminating information on changes that have been reliably observed with the facts and figures and predictions of what might follow would assist in this transformation. We believe that a focussed Government led campaign would help to raise awareness among people and organisations. A campaign to highlight the potential health impacts of climate change would encourage people to consider the impact of their activities on climate change. However, while efforts on the domestic front are a critical step in the right direction, changes in behaviour within the UK will only have limited effect on reducing emissions. The UK is responsible for only 2% of global emissions of greenhouse gases (compared with, for example, the USA which is responsible for more than 20%). Government should work together with learned societies such as the RSC and scientists to persuade and help the scientists of other nations and their government to tackle climate change in a coordinated global effort.

There are significant economic benefits as well as reduced costs associated with adopting new sustainable energy technologies. The RSC believes that government must encourage R&D on alternative energy sources and technologies by investing funds and encouraging industry. Benefits include not only significantly reduced environmental impact but also new job opportunities and huge export potential.

### **Sustainable consumption, production, and use of natural resources**

Industry's role in sustainable development is often viewed as both the problem and the provider of solutions. Modern society would be unsustainable without the services and products provided by industry not to mention the jobs provided by industry. However, industry is also responsible for some of the most unsustainable resource utilisation and inefficient practices.

To stimulate an innovative, competitive, resource-efficient, low-waste, economy the Government needs to put in place a framework to provide incentives (most likely fiscal incentives) to promote innovation that will lead to sustainability. The message to industry must be that improved products and industrial processes will not only

reduce environmental impacts but they also hold the potential for significant cost-savings.

Recycling needs to be better supported within industry. The development of technologies to assist recycling efforts will also offer good economic potential and should be supported and encouraged.

A report commissioned by the Crystal Faraday Partnership on the barriers which exist to the take-up of green chemical technologies<sup>2</sup> highlighted the need for demonstration projects to accelerate the uptake of new technologies and processes by a risk averse industry. This is a view shared by the RSC and we believe that the government needs to work closely with business to lend support to these new technologies.

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<sup>2</sup> The Crystal Faraday Partnership, Research Development and Technology Transfer Working Group Summary Report “Facilitating the up take of Green Chemical Technologies”.